

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Maus et al.

Examiner: Hung Xuan Dang

Patent No: 6,024,902

Group Art Unit: 2873

Date of Patent: Feb. 15, 2000

Docket: 150-9 RE

For: INJECTION MOLDED THERMOPLASTIC SPECTACLE LENS SUITED FOR
FULLY AUTOMATED DIP HARDCOATING (As Amended)

Assistant Commissioner for Patents
Washington, D.C. 20231
Reissue Division

PRELIMINARY AMENDMENT

FOR REISSUE APPLICATION

Sir:

This is a preliminary amendment submitted with an application for reissue of
Patent No. 6,024,902 issued February 15, 2000. Please consider the following
amendments and remarks.

IN THE TITLE

Please amend the title as follows:

INJECTION MOLDED [PAIRED] THERMOPLASTIC SPECTACLE
[LENSES] LENS SUITED FOR FULLY AUTOMATED DIP HARDCOATING

IN THE SPECIFICATION

Please replace, on the cover sheet, the paragraph designated as [62] with the following paragraph:

Related U.S. Application Data

This application is a Division of application [Ser. No. 08/795,903, filed Feb. 5, 1997, now U.S. Pat. No. 5,750,060, which was a Division of application Ser. No. 08/795,613, filed Feb. 5, 1997, now U.S. Pat. No. 5,750,156, which was a Division of application] Ser. No. 08/533,126, filed Sep. 25, 1995, now U.S. Pat. No. 5,718,849.

IN THE CLAIMS

Please amend the claims as follows:

1. (AMENDED) [As an] An article of manufacture, thermoplastic injection-molded paired spectacle lenses, [formed within a moldset having a parting line for opening between an A side and a B side of said moldset],

said paired lenses being suited as a unit of transfer in a multi-step automated manufacturing process comprising at least [an automated demolding step, an automated liquid dip hardcoating step, and an automated drying and curing step,]

[said process being performed robotically within a cleanroom air enclosure, wherein said paired lenses are robotically handled from said demolding step through said dip

hardcoating step and until said dip hardcoating has been dried and cured at least to a tackfree state within said cleanroom air enclosure,]

said paired lenses comprising the elements of:

(a) two thermoplastic injection molded spectacle lens joined into a pair,

[each of said lens having an outer perimeter forming a lens edge contoured for release out of a lens mold cavity,

said outer perimeter comprising four 90-degree quadrants defined in accordance with a clock face, wherein

an upper 90-degree quadrant is defined as being between 10:30 and 1:30 o'clock locations on the lens perimeter,

a lower 90-degree quadrant is defined as being between 4:30 and 7:30 o'clock locations on the lens perimeter,

a righthand side 90-degree quadrant is defined as being between 1:30 and 4:30 o'clock locations on the lens perimeter,

a lefthand side 90-degree quadrant is defined as being between 7:30 and 10:30 o'clock

locations on the lens perimeter,]

(b) a cold runner [having a sprue] connecting [therebetween] a left lens and a right lens in each pair, said cold runner being formed after molten thermoplastic flow and [from said sprue in fluid communication with said left lens and said right lens is stopped and [then cooling to solidification] joins together the lenses into a pair when cooled,

said cold runner being located [in the righthand 1:30-4:30 o'clock side quadrant of the left lens] between said right lens and left lens, [and

said cold runner being located in the lefthand 7:30-10:30 o'clock side quadrant of the right lens,]

(c) an integrally-molded hanger tab located substantially equidistant between said right lens and said left lens of said paired lens,

said hanger tab having a stem rising substantially vertically out of said cold-runner connecting said paired lenses,

said hanger tab having a head located on said stem at a point above a highest lens edge when said paired lenses are held vertically in a dipping position, so as to prevent liquid dip hardcoating from contacting robotic means for gripping said head[,] .

[and said paired lenses formed within said moldset at the end of each molding cycle are robotically handled in the following process steps:

(i) ejecting cleanly off said B side of said moldset being opened along the parting line, said step of ejecting being initiated only when end-of-arm tooling of a takeout robot is in place to receive said paired lenses;

(ii) handling said paired lenses by automation within said cleanroom air enclosure without any human operators therein,

without any cold runner cutting step or any step of trimming of any tabs off the molded lens before dipcoating, and

without use of Freon CFC nor aqueous cleaning protocols before dipcoating;

(iii) dipcoating said paired lenses by said robotic means gripping said head while preventing liquid dip hardcoating from contacting said robotic means;

(iv) drying and curing after dipcoating said paired lenses at least to a tackfree state within said cleanroom air enclosure.]

2. An article of claim 1 wherein said paired lenses are formed within multicavity injection-compression molds employing a variable volume mold cavity process.

3. (AMENDED) An article of claim 1 wherein each of said lens having an outer perimeter forming a lens edge contoured for release out of a lens mold cavity, and said lens edge has a positive draft angle formed on [said B] one side.

4. (AMENDED) An article of claim 1 wherein said cold runner having a sprue connecting therebetween a left lens and a right lens in each pair, and said sprue has a cold well having negative controlled-draft-angle to grip said paired lenses onto [said B] one side.

5. (AMENDED) An article of claim 1 wherein each of said lens having an outer perimeter forming a lens edge contoured for release out of a lens mold cavity, and said lens edge has an edge seal overlap on [said A] one side.

6. (AMENDED) An article of claim 1 having an additional element of
(d) one or more ejector tabs [are] being employed,

said ejector tabs only being located along the lens perimeter so as not to interfere with proper dipcoating and not to propagate coating flowout runs, and none of such tabs being located in the upper quadrant.

7. (AMENDED) An article of claim 1 having an additional element of
(d) one or more drip tabs [are] being employed,

said drip tabs only being located along the lens perimeter in [the] a bottom quadrant of each lens [(4:30-7:30 o'clock positions)], to minimize dipcoating dripmark size, by capillary wicking action to drain off excess liquid coating once the molded paired lens have been fully removed from immersion in [the] a dipbath.

8. (AMENDED) An article of claim 1 wherein said paired lenses are polycarbonate spectacle lenses for vision correction.

9. (AMENDED) An article of claim 1 wherein [said] a takeout robot is in place to receive said paired lenses upon ejection is of a side entry type, and modular blowers supplying HEPA-filtered air are located directly above platens of an injection molding machine within which [said] a moldset is mounted, so as to maintain a positive-air-pressure within [said] a cleanroom air enclosure which substantially surrounds said moldset.

10. An article of claim 9 wherein said side entry type takeout robot operates within a clean-room-enclosed tunnel between said moldset and an enclosed HEPA-filtered automated dipcoating machine.

11. (AMENDED) An article of claim 1 wherein [after said] a takeout robot has received said paired lenses upon ejection from a moldset, a step of cooling and removal of electrostatic charge of said paired lenses is performed before [said step (iii) of] dipcoating.

12. (AMENDED) An article of claim [1] 11 wherein said step of cooling and removal of electrostatic charge of said paired lenses is performed by immersion into a circulating filtered [alcohol] bath before [said step (iii) of] dipcoating.

13. (AMENDED) An article of claim 1 wherein [said step (iii) of] dipcoating said paired lenses employs a programmable SCARA cylindrical type robot, as a [second] robotic device to grip said paired lenses by said hanger tab,

said programmable SCARA cylindrical type robot being fitted with jaws cut with a mating geometry for retaining said head of said hanger tab of said paired lenses, for gripping said head while preventing liquid dip hardcoating from contacting said [robotic means] robot.

14. (AMENDED) An article of claim 13 wherein said [step (iii) of] dipcoating said paired lenses employing said programmable SCARA cylindrical type robot gripping said paired lenses by said hanger tab employs:

(a) a filtered circulating bath of liquid hardcoating of 2-10 centistoke viscosity;

(b) a withdrawal speed of at least 20 inches per minute.

15. (AMENDED) An article of claim 14 wherein said [step (iii) of] dipcoating said

[illegible]

(b) a withdrawal speed of 0.5-5 inches per second;

16. (AMENDED) An article of claim 1 further comprising [wherein said step (iv) of] drying and curing after dipcoating said paired lenses at least to a tackfree state within [said] a cleanroom air enclosure which employs a rotary index drive fitted with a plurality of workholder arms,

operating as a carousel curing workstation].

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which employs said head of said hanger tab of said paired lenses for a spring interference fit for its mechanical retention means.

18. As an article of manufacture, polycarbonate injection-compression molded paired spectacle lenses for vision correction formed within a variable volume multicavity moldset having a parting line for opening between an A side and a B side of said moldset,

said process being performed robotically within a cleanroom air enclosure, wherein said paired lenses are robotically handled from said demolding step through said dip hardcoating step and until said dip hardcoating has been dried and cured at least to a tackfree state within said cleanroom air enclosure,

(a) two polycarbonate injection-compression molded paired spectacle lens for vision correction joined into a pair,

said outer perimeter comprising four 90-degree quadrants defined in accordance with a clock face, wherein

an upper 90-degree quadrant is defined as being between 10:30 and 1:30 o'clock locations on the lens perimeter,

a lower 90-degree quadrant is defined as being between 4:30 and 7:30 o'clock locations on the lens perimeter,

a righthand side 90-degree quadrant is defined as being between 1:30 and 4:30 o'clock locations on the lens perimeter,

a lefthand side 90-degree quadrant is defined as being between 7:30 and 10:30 o'clock locations on the lens perimeter,

(b) a cold runner having a sprue connecting therebetween a left lens and a right lens in each pair, said cold runner being formed after molten thermoplastic flow from said sprue in fluid communication with said left lens and said right lens is stopped and then cooling to solidification joins together the lenses into a pair, and said sprue has a cold well having negative controlled-draft-angle to grip said paired lenses onto said B side,

said cold runner being located in the righthand 1:30-4:30 o'clock side quadrant of the left

lens and

said cold runner being located in the lefthand 7:30-10:30 o'clock side quadrant of the right lens,

(c) an integrally-molded hanger tab located substantially equidistant between said right lens and said left lens of said paired lens,

said hanger tab having a stem rising substantially vertically out of said cold-runner connecting said paired lenses

said hanger tab having a head located on said stem at a point above a highest lens edge when said paired lenses are held vertically in a dipping position, so as to prevent liquid dip hardcoating from contacting robotic means for gripping said head,

and said paired lenses formed within said moldset at the end of each molding cycle are robotically handled in the following process steps:

(i) ejecting cleanly off said B side of said moldset being opened along the parting line, said step of ejecting being initiated only when end-of-arm tooling of a side entry takeout robot is in place to receive said paired lenses;

(ii) handling said paired lenses by automation within said cleanroom air enclosure

without any human operators therein,

without any cold runner cutting step or any step of trimming of any tabs off the molded lens before dipcoating, and

without use of Freon CFC nor aqueous cleaning protocols before dipcoating;

(iii) cooling and removal of electrostatic charge of said paired lenses;

(iv) dipcoating said paired lenses with a programmable SCARA cylindrical type robot, as a second robotic device to grip said paired lenses by said hanger tab,

said programmable SCARA cylindrical type robot being fitted with jaws cut with a mating geometry for retaining said head of said hanger tab of said paired lenses, for gripping said head while preventing liquid dip hardcoating from contacting said robotic means, employing:

(a) a filtered circulating bath of liquid hardcoating of 2-10 centistoke viscosity;

(b) a withdrawal speed of at least 20 inches per minute

(v) drying and curing after dipcoating said paired lenses at least to a tackfree state within said cleanroom air enclosure,

employing a rotary index drive fitted with a plurality of workholder arms,

each workholder arm being fitted with mating geometry for retaining said head of said hanger tab of said paired lenses, operating as a carousel curing workstation.

19. (NEW) An article of manufacture comprising:

a thermoplastic molded lens;

a cold-runner attached to the lens;

the cold-runner including a stem with a free end portion, the free end portion including a point above a highest lens edge when the lens is held in a dipping position, the free end portion to provide a first position for a robotic grip, the stem including a second position along the length for a robotic grip.

20. (NEW) The article of manufacture as recited in claim 19, wherein the free end portion includes a forked head to provide the first position.

21. (NEW) The article of manufacture as recited in claim 20, wherein the forked head includes detents which are configured to receive the robotic grip to prevent dislodging of the forked head during transport.

22. (NEW) The article of manufacture as recited in claim 21, wherein the forked head includes legs which deflect inwardly to provide a spring force to prevent dislodging of the forked head during transport.

23. (NEW) The article of manufacture as recited in claim 19, wherein the stem includes a bulged portion to provide the second position.

24. (NEW) The article of manufacture as recited in claim 23, wherein the bulged portion extends laterally outward from the stem.

25. (NEW) The article of manufacture as recited in claim 23, wherein the first position and the second position are spaced apart along the stem to permit a robotic hand-off where a first robot grips the stem at one of the first and second positions and a second robot grips the stem at the other of the first and second positions.

26. (NEW) The article of manufacture as recited in claim 19, wherein the lens includes a circular shape, the lens attaching to the cold-runner at or below between a 3 o'clock position and a 9 o'clock position on a face of the lens, the stem extending above the 12 o'clock position on the lens face.

27. (NEW) The article of manufacture as recited in claim 19, wherein the lens and the cold-runner are formed in a same molding process.

28. (NEW) The article of manufacture as recited in claim 19, wherein the stem is formed during molding, without cutting, to form the free end portion.

29. (NEW) The article of manufacture as recited in claim 19, wherein the lens includes an upper 90-degree quadrant between a 10:30 o'clock and a 1:30 o'clock position when the lens is positioned for dip coating, the stem being connected to the lens outside the upper 90-degree quadrant.

30. (NEW) An article of manufacture comprising;

a hanger tab having a head and a stem all integrally-molded to a plastic lens having an upper 90-degree quadrant between a 10:30 o'clock and a 1:30 o'clock position when the lens is positioned for dip coating, the stem being edge gated to the lens outside the upper 90-degree quadrant; and the stem having a second gripping position along its length between the head and the edge gate.

31. (NEW) The article of manufacture of claim 30, wherein the second gripping position of the stem includes a protruding slide-stop.

32. (NEW) The article of manufacture of claim 30, wherein said stem is configured for mating with a different robotic grip than the head.

33. (NEW) The article of manufacture of claim 30, wherein said stem is configured for mating with a different workholder mating geometry than the head

34. (NEW) The article of manufacture of claim 30, wherein the head is configured to geometrically mate with a robotic device.

35. (NEW) The article of manufacture of claim 30, wherein the head is configured to geometrically mate with a workholder.

36. (NEW) The article of manufacture of claim 30, wherein the head is configured to geometrically mate with a rack.

37. (NEW) The article of manufacture of claim 30, wherein the head is configured to geometrically mate with a robotic device, a workholder and a rack.

38. (NEW) The article of manufacture of claim 30, wherein the head has a horseshoe shape.

39. (NEW) The article of manufacture of claim 38, wherein the head includes detents to prevent the head from being dislodged during transport.

40. (NEW) The article of manufacture of claim 30, wherein the head includes legs which deflect via a pushing force to prevent the head from being dislodged during transport.

41. (NEW) The article of manufacture of claim 30, wherein the lens has a top edge when positioned for dip coating and the head is located above the top edge.

42. (NEW) The article of manufacture of claim 41, wherein the second gripping position is located above the top edge.

43. (NEW) The article of manufacture of claim 30, wherein the hanger tab rises substantially vertically, when the lens is positioned for dip coating.

44. (NEW) The article of manufacture of claim 30, further comprising a second lens connected by a cold-runner to the plastic lens, wherein the hanger tab rises off the cold-runner.

45. (NEW) The article of manufacture of claim 44, wherein the hanger tab rises substantially vertically off of the cold-runner, when the lens is positioned for dip coating.

46. (NEW) The article of manufacture of claim 44, wherein the hanger tab is located substantially equidistant between the two lenses.

47. (NEW) The article of manufacture of claim 46, wherein the hanger tab rises substantially vertically off of the cold-runner, when the lenses are positioned for dip coating.

48. (NEW) The article of manufacture of claim 44, wherein the cold-runner is edge gated to one lens between the 1:30 o'clock and the 4:30 o'clock positions and is edge gated to

the other lens between the 7:30 o'clock and 10:30 o'clock positions, when the lenses are positioned for dip coating.

49. (NEW) An article of manufacture comprising:

a pair of thermoplastic molded lenses attached by a cold-runner;

the cold-runner including a stem with a free end portion, the free end portion including a point above a highest lens edge when the pair of lenses are held in a dipping position, the free end portion to provide a first position for a robotic grip, the stem including a second position along the length for a robotic grip.

50. (NEW) The article of manufacture as recited in claim 49, wherein the free end portion includes a forked head to provide the first position.

51. (NEW) The article of manufacture as recited in claim 50, wherein the forked head includes detents which are configured to receive the robotic grip to prevent dislodging of the forked head during transport.

52. (NEW) The article of manufacture as recited in claim 49, wherein the forked head includes legs which deflect inwardly to provide a spring force to prevent dislodging of the forked head during transport.

53. (NEW) The article of manufacture as recited in claim 49, wherein the stem includes a bulged portion to provide the second position.

54. (NEW) The article of manufacture as recited in claim 53, wherein the bulged portion extends laterally outward from the stem.

55. (NEW) The article of manufacture as recited in claim 49, wherein the first position and the second position are spaced apart along the stem to permit a robotic hand-off where a first robot grips the stem at one of the first and second positions and a second robot grips the stem at the other of the first and second positions.

56. (NEW) The article of manufacture as recited in claim 49, wherein each lens includes a circular shape, each lens attaching to the cold-runner at or below between a 3 o'clock position and a 9 o'clock position on a face of the lens, the stem extending above the 12 o'clock position on the lens faces.

57. (NEW) The article of manufacture as recited in claim 49, wherein the lens and the cold-runner are formed in a same molding process.

58. (NEW) The article of manufacture as recited in claim 49, wherein the stem is formed during molding, without cutting, to form a hanger tab portion.

59. (NEW) The article of manufacture as recited in claim 49, wherein each lens includes an upper 90-degree quadrant between a 10:30 o'clock and a 1:30 o'clock position when

the lens is positioned for dip coating, the stem being connected to the lens outside the upper 90-degree quadrant.

60. (NEW) A method for manufacturing lenses, comprising the steps of:

molding a pair of thermoplastic molded lenses attached by a cold-runner, the cold-runner including a stem with a free end portion, the free end portion including a point above a highest lens edge when the pair of lenses are held in a dipping position, the free end portion to provide a first position for a robotic grip, the stem including a second position along the length for a robotic grip;

gripping one of the first position and the second position to provide a gripped position; and

dip coating the lens pair by immersing the lens pair in solution without immersing the gripped position.

61. (NEW) The method as recited in claim 60, wherein the step of molding includes injection-molding polycarbonate.

62. (NEW) The method as recited in claim 60, wherein the free end portion includes a forked head to provide the first position, the forked head including detents which are configured to receive the robotic grip, and wherein the step of gripping includes gripping the forked head at the detents to prevent dislodging of the forked head during transport.

63. (NEW) The method as recited in claim 60, wherein the free end portion includes a forked head to provide the first position wherein the forked head includes legs which deflect inwardly to provide a spring force wherein the step of gripping includes gripping the forked head while compressing the legs to prevent dislodging of the forked head during transport.

64. (NEW) The method as recited in claim 60, wherein the stem includes a bulged portion to provide the second position, and the step of gripping includes gripping the stem below the bulged portion.

65. (NEW) The method as recited in claim 60, wherein the first position and the second position are spaced apart along the stem, and further comprising the step of handing-off the lenses between robot grips where a first robot grips the stem at one of the first and second positions and a second robot grips the stem at the other of the first and second positions.

66. (NEW) The method as recited in claim 60, wherein the step of dip coating the lens pair includes maintaining the first position above a surface of the solution during the dip coating.

67. (NEW) The method as recited in claim 60, wherein the step of dip coating the lens pair includes maintaining the free end portion above a surface of the solution during the dip coating while the pair of lenses are fully immersed in the solution.

68. (NEW) The method as recited in claim 60, wherein the step of dip coating the lens pair includes maintaining the free end portion vertically above the lenses during the dip coating.

69. (NEW) The method as recited in claim 60, wherein the cold-runner attaches to each lens at or below between a 3 o'clock position and a 9 o'clock position on a face of the lens, and wherein the step of dip coating the lens pair includes maintaining the free end portion vertically above the lenses during the dip coating.

70. (NEW) The method as recited in claim 60, wherein the step of molding includes forming the pair of lenses and the cold-runner in a same molding process.

71. (NEW) The method as recited in claim 60, wherein the stem is formed during molding, without cutting, to form a hanger tab portion.

72. (NEW) The method as recited in claim 60, wherein the steps of molding, gripping and dip coating are performed in a same clean-room envelope.

73. (NEW) The method as recited in claim 60, further comprising the step of curing the dip coating material.

74. (NEW) The method as recited in claim 60, further comprising the step of coating the each lens with an anti-reflection coating.

75. (NEW) The method as recited in claim 60, further comprising the step of inspecting the pair of lenses in an automatic inspection process.

76. (NEW) The method as recited in claim 75, wherein the step of inspecting is carried out in a same clean-room envelope as the steps of molding, gripping and dip coating.

77. (NEW) The method as recited in claim 60, wherein the first position includes a hanger tab which extends beyond a highest lens edge vertically above a coating solution during the dip coating step.

78. (NEW) The method as recited in claim 60, wherein the cold-runner attaches to each lens outside of an upper 90-degree quadrant between a 10:30 o'clock position and a 1:30 o'clock position when the lens is positioned for dipping, and wherein the step of dip coating the lens includes maintaining the free end portion vertically above the lens during the dip coating.

79. (NEW) The method as recited in claim 60, wherein the free end portion includes a point above a highest lens edge when the lens is held during the step of dip coating.

80. (NEW) The method as recited in claim 60, wherein said molding step includes molding two lenses connected by the cold-runner, wherein the stem rises off the cold-runner.

81. (NEW) The method as recited in claim 80, wherein the stem rises substantially vertically off of the cold-runner, when the lens is positioned for dip coating.

82. (NEW) The method as recited in claim 80, wherein the stem is located substantially equidistant between the two lenses.

83. (NEW) A method for manufacturing lenses, comprising the steps of:

molding a thermoplastic molded lens with a cold-runner attached to the lens, the cold-runner including a stem with a free end portion, the free end portion including a point above a highest lens edge when the lens is held in a dipping position, the free end portion to provide a first position for a robotic grip, the stem including a second position along the length for a robotic grip;

gripping one of the first position and the second position to provide a gripped position; and

dip coating the lens by immersing the lens in solution without immersing the gripped position.

84. (NEW) The method as recited in claim 83, wherein the step of molding includes injection-molding polycarbonate.

85. (NEW) The method as recited in claim 83, wherein the free end portion includes a forked head to provide the first position, the forked head including detents which are configured to receive the robotic grip, and wherein the step of gripping includes gripping the forked head at the detents to prevent dislodging of the forked head during transport.

86. (NEW) The method as recited in claim 83, wherein the free end portion includes a forked head to provide the first position wherein the forked head includes legs which deflect inwardly to provide a spring force wherein the step of gripping includes gripping the forked head while compressing the legs to prevent dislodging of the forked head during transport.

87. (NEW) The method as recited in claim 83, wherein the stem includes a bulged portion to provide the second position, and the step of gripping includes gripping the stem below the bulged portion.

88. (NEW) The method as recited in claim 83, wherein the first position and the second position are spaced apart along the stem, and further comprising the step of handing-off the lens between robot grips where a first robot grips the stem at one of the first and second positions and a second robot grips the stem at the other of the first and second positions.

89. (NEW) The method as recited in claim 83, wherein the step of dip coating the lens includes maintaining the first position above a surface of the solution during the dip coating.

90. (NEW) The method as recited in claim 83, wherein the step of dip coating the lens includes maintaining the free end portion above a surface of the solution during the dip coating while the lens is fully immersed in the solution.

91. (NEW) The method as recited in claim 83, wherein the step of dip coating the lens includes maintaining the free end portion vertically above the lens during the dip coating.

92. (New) The method as recited in claim 83, wherein the cold-runner attaches to the lens at or below between a 3 o'clock position and a 9 o'clock position on a face of the lens, and wherein the step of dip coating the lens includes maintaining the free end portion vertically above the lens during the dip coating.

93. (NEW) The method as recited in claim 83, wherein the step of molding includes forming the lens and the cold-runner in a same molding process.

94. (NEW) The method as recited in claim 83, wherein the stem is formed during molding, without cutting, to form a hanger tab portion.

95. (NEW) The method as recited in claim 83, wherein the steps of molding, gripping and dip coating are performed in a same clean-room envelope.

96. (NEW) The method as recited in claim 83, further comprising the step of curing the dip coating material.

97. (NEW) The method as recited in claim 83, further comprising the step of coating the lens with an anti-reflection coating.

98. (NEW) The method as recited in claim 83, further comprising the step of inspecting the lens in an automatic inspection process.

99. (NEW) The method as recited in claim 98, wherein the step of inspecting is carried out in a same clean-room envelope as the steps of molding, gripping and dip coating.

100. (NEW) The method as recited in claim 83, wherein the first position includes a hanger tab which extends beyond a highest lens edge vertically above a coating solution during the dip coating step.

101. (NEW) The method as recited in claim 83, wherein the cold-runner attaches to each lens outside of an upper 90-degree quadrant between a 10:30 o'clock position and a 1:30 o'clock position when the lens is positioned for dipping, and wherein the step of dip

coating the lens includes maintaining the free end portion vertically above the lens during the dip coating.

102. (NEW) The method as recited in claim 83, wherein the free end portion includes a point above a highest lens edge when the lens is held during the step of dip coating.

103. (NEW) The method as recited in claim 83, wherein said molding step includes molding two lenses connected by the cold-runner, wherein the stem rises off the cold-runner.

104. (NEW) The method as recited in claim 103, wherein the stem rises substantially vertically off of the cold-runner, when the lens is positioned for dip coating.

105. (NEW) The method as recited in claim 103, wherein the stem is located substantially equidistant between the two lenses.

REMARKS

The Applicants hereby offer to surrender U.S. Patent No. 6,024,902 upon allowance of the reissue application.

STATEMENT OF STATUS AND SUPPORT

FOR ALL CHANGES TO THE CLAIMS UNDER 37 CFR 1.173 (c)

Claims 1-105 are now pending in the reissue application. Claims 1, 3-9, and 11-17 have been amended and claims 19-105 have been added. No new matter has been introduced by the amendments. Claims 2, 10 and 18 have been reproduced for the convenience of the Examiner. The Examiner's consideration of claims is respectfully requested. Please make the following amendments to the specification and claims of U.S. Patent No. 6,024,902.

By the preliminary amendment, claim 1 has been amended to broaden its scope. The article of manufacture as recited in now amended claim 1 finds support in the specification at, *inter alia*, col. 19 line 60 through col. 20 line 52. Claims 3-5 have been amended in a way, which is consistent with amended claim 1. Claims 6-9 have been amended to correct typographical errors and make these claims consistent with amended claim 1 from which they depend. Claims 11-17 have been amended to correct typographical errors and make the claims consistent with amended claim 1 from which they depend either directly or indirectly. The term "alcohol" has been deleted from claim 12. Support for this amendment can be found in the specification at col. 20, lines 53-55. The claims have been amended in a way believed to broaden the their scope. The claims

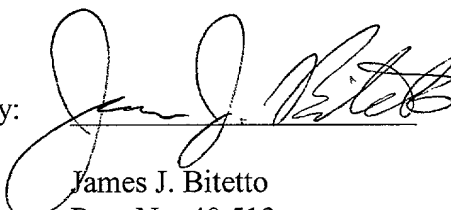
are not believed to be narrowing or made as a result of statutory requirements imposed on the claims.

Claims 19-26 and 49-56 find support in the specification at least at col. 19, line 60 through col. 20, line 60 (FIGS. 3, 3A, 3C and 3D). Claims 27, 28, 57 and 58 find support in the specification at least at col. 8 lines 30-38, and col. 23 lines 1-8 (FIGS. 1A). Claims 30-31, 34-37, and 41-48 find support in the specification at least at col. 7 lines 1-63 and claims 29, 30, 59, 78 and 101 find support at least at col. 15 lines 58-65. Additionally, claims 60-77 and 79-82 and claims 83-100 and 102-105 find support in the specification at least at col. 19, line 1 to col. 24, line 43 (FIGS. 4B, 4C and 4D). It is therefore respectfully submitted that all claims now pending in the case are supported by the specification and drawings.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration of the case is respectfully requested.

Respectfully submitted,

February 8, 2002

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